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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,593	12/11/2003	Chris Eaton	2002-022	8182

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EXAMINER	
NEGRON, WANDA M	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
06/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,593	EATON ET AL.	
	Examiner	Art Unit	
	Wanda M. Negrón	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☒ Claim(s) *5,13,19 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/11/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

6/14/07

Claims 5, 13, 19 and 32 are objected to because the word *polyethylene* is misspelled as "polyethylene". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allan (UK Patent No. GB2376592A), further in view of Saiki et al. (US Patent No. 7,050,600 B2).

Regarding **claim 1**, Allan discloses a combination camera and loudspeaker (see figure 3) comprising a lens (20) for selectively capturing and manipulating an image; and a loudspeaker assembly (recurve benders 22 and mounting plate 21) disposed proximate the lens, disposed around at least a portion of an outer perimeter of the lens (see figure 3), for projecting audible sounds. Allan also discloses that "any electromechanical device which generates movement", e.g. "a voice-coil" configuration, can be used as the "actuator of the combined loudspeaker-camera" instead of the disclosed recurve benders 22 and mounting plate 21 (see page 3, lines 1-4). Allan, however, does

not explicitly teach that the voice-coil loudspeaker assembly comprises a speaker coil, and a transparent diaphragm connected to the speaker coil and aligned with at least a portion of the lens.

The concept of using a loudspeaker configuration comprising a voice coil attached to a transparent, e.g. an acrylic, diaphragm is well known in the art, as evidenced by Saiki et al. (see figure 2; col. 9, lines13-21).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the well known voice coil and transparent diaphragm speaker configuration taught by Saiki et al. in the camera-loudspeaker device of Allan because such configuration would minimize the footprint of the separate components (see Allan, page 1, paragraphs 7-8) minimizing the size of the end-product.

Regarding **claims 2 and 4**, it would have been inherent to have a controller connected to the loudspeaker assembly in order to control the diaphragm vibration for producing the appropriate sound, which would inherently change the radius of curvature of the transparent diaphragm.

Regarding **claim 3**, official notice is taken that the concept and the advantage of using electric motors controlled by a controller to selectively move one or more lens elements within an optical system are well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an electric motor controlled by a controller to selectively move a lens element, e.g. the transparent diaphragm, in order to have a zoom operation capability.

Regarding **claim 5**, official notice is taken that the concept of constructing a transparent diaphragm polyethylene terephthalate (PET) plastic for use in a loudspeaker assembly is well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a PET plastic transparent diaphragm because it is an elastic durable material, and, furthermore, its use would have not been likely to produce any unexpected results.

Regarding **claims 6 and 7**, Allan, as modified by Saiki et al., discloses that the transparent diaphragm is constructed of a transparent material with a thickness comprising between 10 μm and 50 μm, e.g. approximately 20 μm (see Saiki et al., col. 9, lines 13-19).

Regarding **claims 8 and 9**, Allan, as modified by Saiki et al., discloses that the combination camera and loudspeaker is disposed within a mobile device, e.g. a cellular telephone (see Allan, page 1, paragraph 6).

Method **claims 10 and 14** are drawn to the method of using the corresponding apparatus claimed in claim 2. Therefore method claims 10 and 14 correspond to apparatus claim 2 and are rejected for the same reasons of obviousness as used above.

Method **claims 11-13** are drawn to the method of using the corresponding apparatus claimed in claims 3-5. Therefore method claims 11-13 correspond to apparatus claims 3-5 and are rejected for the same reasons of obviousness as used above.

Regarding **claims 15-18**, Allan discloses a camera assembly (see figure 3) comprising a lens (20) for selectively manipulating an image, and a loudspeaker (recurve benders 22 and mounting plate 21) aligned with at least a portion of the lens (see figure 3). Allan also discloses that "any electromechanical device which generates movement", e.g. "a voice-coil" configuration, can be used as the "actuator of the combined loudspeaker-camera" instead of the disclosed recurve benders 22 and mounting plate 21 (see page 3, lines 1-4). Allan, however, does not explicitly teach that the voice-coil loudspeaker assembly comprises a speaker coil, and a transparent diaphragm connected to the speaker coil and aligned with at least a portion of the lens.

The concept of using a loudspeaker configuration comprising a voice coil attached to a transparent, e.g. an acrylic, diaphragm is well known in the art, as evidenced by Saiki et al. (see figure 2; col. 9, lines13-21).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the well known voice coil and transparent diaphragm speaker configuration taught by Saiki et al. in the camera-loudspeaker device of Allan because such configuration would minimize the footprint of the separate components (see Allan, page 1, paragraphs 7-8) minimizing the size of the end-product.

It would have been inherent to have a controller connected to the loudspeaker assembly in order to control the diaphragm vibration for producing the appropriate sound, which would inherently change the radius of curvature of the transparent diaphragm.

Regarding **claim 19**, official notice is taken that the concept of constructing a transparent diaphragm polyethylene terephthalate (PET) plastic for use in a loudspeaker assembly is well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a PET plastic transparent diaphragm because it is an elastic durable material, and, furthermore, its use would have not been likely to produce any unexpected results.

Regarding **claims 20 and 21**, Allan, as modified by Saiki et al., discloses that the transparent diaphragm is constructed of a transparent material with a thickness comprising between 10 μm and 50 μm, e.g. approximately 20 μm (see Saiki et al., col. 9, lines 13-19).

Regarding **claims 22-25**, official notice is taken that the concept and the advantage of using a protective panel, e.g. a fixed transparent material or a rigid panel slidably connected to the camera assembly and movable between a first covering position and a second exposing position, disposed across the camera optical system are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include any type of the well known protective covers to the device disclosed by Allan, as modified by Saiki et al., to protect the optical system of the camera, i.e. the loudspeaker diaphragm and the lens, in order to prevent any damage to the optical system.

Regarding **claims 26 and 27**, Allan, as modified by Saiki et al., discloses that the combination camera and loudspeaker is disposed within a mobile device, e.g. a cellular telephone (see Allan, page 1, paragraph 6).

Method **claims 28-32** are drawn to the method of using the corresponding apparatus claimed in claims 1-5. Therefore method claims 28-32 correspond to apparatus claims 1-5 and are rejected for the same reasons of obviousness as used above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kawabata (JP Application Publication No. 11-072723) discloses a variable focus micro-optical element with PZT actuators.
- Choi et al. (US Application Publication No. 2003/0043478 A1) teach an image module that uses a voice coil as an actuator for focusing.
- Widl (US Patent No. 6,081,388) teaches an optoelectronic imaging system that uses multiple variable focus elements in order to obtain both focusing and zoom capabilities.
- Baba et al. (US Patent No. 4,802,746) disclose a variable focus optical element with PZT actuators.
- Sakai (International Publication No. WO 01/41496 A2) discloses various voice coil/diaphragm configurations for use in a camera phone.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wanda M. Negrón whose telephone number is (571) 270-1129. The examiner can normally be reached on Mon-Fri 6:30 am - 4:00 pm alternate Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wanda M. Negrón/
Examiner, Art Unit 2622
June 8, 2007

DAVID OMETZ
SUPERVISORY PATENT EXAMINER